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### (54) Signal processing apparatus and method

(57) An integrated digital communication system utilizing multilevel vestigial sideband transmission is provided. The communication system receives a multi-level pulse-amplitude modulated digital signal from a limited bandwidth channel. The system includes processing stages which demodulate, sample and filter the incoming signal prior to recovery of the digital data.

Other stages recover the timing and lock on to the frequency and phase of the transmitted signal, as well as provide for automatic gain control. An adaptive equalizer, error correction circuitry, and an output interface recover the digital data and provide for transfer to other devices.

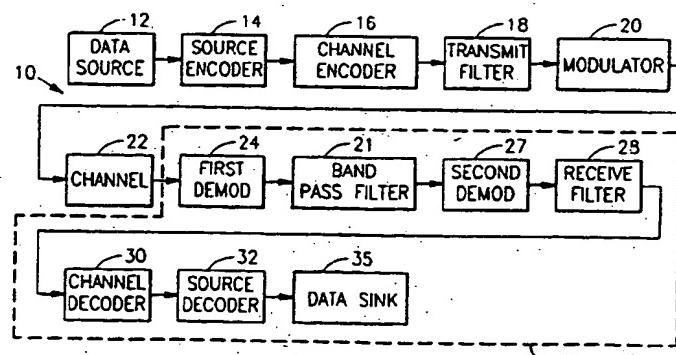


FIG.1

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## EUROPEAN SEARCH REPORT

Application Number

EP 96 30 1869

DOCUMENTS CONSIDERED TO BE RELEVANT									
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)						
Y	EP 0 624 033 A (PHILIPS') 9 November 1994 * column 9, line 50 - column 10, line 50 * * figure 5 *	1-6,8,10	H04N7/24 H04L27/06 H03M13/22 H04L7/033						
Y	EP 0 639 914 A (MARTIN MARIETTA CORP) 22 February 1995 * page 4, line 31 - line 39 * * figure 3 *	1-6,8,10	H04N7/52 H04N7/60 H04Q11/02						
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A	WO 94 26067 A (THOMSON) 10 November 1994 * page 9, line 11 - line 27 * * page 2, line 9 - line 12 *	6,10							
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A,D	CITTA R ET AL: "PRACTICAL IMPLEMENTATION OF A 43 MBIT/SEC. (8 BIT/HZ) DIGITAL MODEM FOR CABLE TELEVISION" PROCEEDINGS FROM ELEVEN TECHNICAL SESSIONS OF THE 42ND ANNUAL CONVENTION AND EXPOSITION OF THE NATIONAL CABLE TELEVISION ASSOCIATION, SAN FRANCISCO. 6 - 9 June 1993, pages 271-279, XP000410506	1-6	H04L H04N  TECHNICAL FIELDS SEARCHED (Int.Cl.6)						
<p>The present search report has been drawn up to the best of my knowledge and belief.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Place of search</td> <td style="width: 33%;">Date</td> <td style="width: 33%;">Examiner</td> </tr> <tr> <td>THE HAGUE</td> <td>9 December 1998</td> <td>GHIGLIOTTI, L.</td> </tr> </table>				Place of search	Date	Examiner	THE HAGUE	9 December 1998	GHIGLIOTTI, L.
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THE HAGUE	9 December 1998	GHIGLIOTTI, L.							
CATEGORY OF CITED DOCUMENTS		Reasons or passages underlying the invention <input type="checkbox"/> particularly relevant if taken alone <input type="checkbox"/> particularly relevant if combined with another document of the same category <input type="checkbox"/> technological background <input type="checkbox"/> non-written disclosure <input type="checkbox"/> intermediate document							
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